

## CLAIMS

1. (currently amended) Method for separation of isotopes, where a specific isotope of an isotope composition is purified by exploiting the difference in the isotope's mass diffusivity by making the natural isotope composition, in one cycle, travel in a mass stream through a media by diffusion and optionally also convection, and thus obtain a fractioning of the isotopes such that the wanted isotope is enriched in one fraction of the mass stream, collecting this enriched fraction of the mass stream and send it through another cycle to obtain a fraction with higher content of the wanted isotope, and repeat these cycles until the wanted isotope has become sufficiently enriched,

~~characterised in~~ wherein

~~- that the hydrogen is used as ligand on the an element that is to be separated, and that the hydrogen and the element that is to be separated is are employed in the form of a chemical compound that is in a gaseous state at the actual pressure and temperatures, and~~

~~- that the gaseous hydrides are chemical compound in a gaseous state is separated by mass diffusion through a chromatographic column, and wherein~~

~~- the gaseous chemical compound is silane,  $\text{SiH}_4$  in the case of isotopically separating  $^{28}\text{Si}$  from  $^{29}\text{Si}$  and  $^{30}\text{Si}$ , or~~

~~- the gaseous chemical compound is one of  $\text{B}_2\text{H}_6$ ,  $\text{NH}_3$ ,  $\text{CH}_4$ ,  $\text{H}_2\text{O}$ ,  $\text{H}_2\text{S}$ ,  $\text{HCl}$ ,  $\text{Ga}_2\text{H}_6$ ,  $\text{Ge}_2\text{H}_6$ ,  $\text{H}_2\text{Se}$ ,  $\text{HBr}$ ,  $\text{H}_2\text{Sb}$ , and  $\text{H}_2\text{Te}$  for obtaining an isotopically pure fraction of B, C, O, S, Cl, Ga, Ge, Se, Br, Sb, and Te, respectively.~~

2. (cancelled)

3. (cancelled)

4. (currently amended) Method according to ~~any of claim 1-3,~~  
characterised in that the chromatographic column ~~are~~ is packed with monodisperse polystyrene particles.

5. (original) Method according to claim 4, characterised in that the monodisperse polystyrene particles are made of a mixture comprising divinylbenzene and polyacrylate.
6. (original) Method according to claim 5, characterised in that the monodisperse polystyrene particles have a particle size of 20  $\mu\text{m}$ , porosity of 70 %, and surface area of 148  $\text{m}^2/\text{g}$ .
7. (currently amended) Method according to ~~any of claim 4-6~~ either claim 1, 4, 5 or 6, characterised in that the carrier gas is argon.
8. (original) Method according to claim 7, characterised in that the argon gas has a pressure of 0.5 bar in the chromatographic column and that the temperature is 50°C.